

## ABSTRACT

A photo mask production method capable of producing in short time and at low costs a photo mask on which a correction is made for a pattern deformation produced by an optical proximity effect when transferring a mask pattern. Partial master patterns ( $P_i$  ( $i=1$  to  $N$ )) formed by dividing into  $N$  segments a master pattern obtained by magnifying at a specified magnification a circuit pattern to be formed on a wafer ( $W$ ) are respectively drawn on a substrate to prepare master reticles ( $R_i$  ( $i=1$  to  $N$ )), and reduction images ( $PW_i$ )  $1/\beta$  times as large as the partial master patterns ( $P_i$ ) of the master reticles ( $R_i$ ) are transferred onto a substrate (26) while image fields are joined one by one to produce a working reticle ( $WR$ ). An illuminating condition required in transferring partial master pattern images of the master reticles ( $R_i$ ) onto the substrate (26) is set so as to offset changes in projection images to be produced by an optical proximity effect when the mask pattern of the working reticle ( $WR$ ) is transferred onto the wafer ( $W$ ).